16 Age and Performance

In this chapter you will learn about:

- Age-associated changes in metabolism and body composition.
- Countering age-associated changes in physical performance.

Aging is a natural process that most, if not all, people would like to avoid. Most people associate aging with gaining weight, getting weaker, and not being able to perform many of the activities they did in their youth. Many of these conditions are actually the result of **inactivity**, not aging. Although there are several inevitable physiologic changes that will occur as you age, the degree of these changes can be manipulated through sound dietary and exercise practices.

Changes in Metabolism and Body Composition

Maintaining a healthy body weight and body fat percentage throughout your adult life is key to maintaining health and fitness as you age. This often seems easier said than done, considering basal metabolic rate (BMR, see Chapter 1) declines as you age.

With aging, expect to see a gradual decline in BMR, possibly resulting in needing 100 fewer kcal a day with each passing decade.

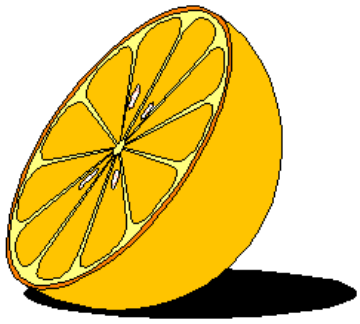
Taken from Tufts University Health and Nutrition Letter. November 1998; 16(9): 6.

The loss of muscle mass as you age is directly responsible for the decline in BMR. Muscle is metabolically active, which means that it requires a set number of kcals each day to maintain its mass. On average, people begin to lose some muscle mass after the age of 35 years. This results in fewer metabolic demands and less total daily kcal requirements. However, the amount of muscle mass that you lose is dependent upon how much physical activity you perform as you age, particularly activities that require muscle strength such as strength training. By engaging in strength training exercises you will preserve and possibly gain muscle mass, leading to a 10% to 15% boost in your BMR!

Along with a decrease in muscle mass, inactivity can also lead to an increase in body fat. This occurs if the number of kcals consumed is greater than the number of kcals expended through physical activity, as explained in the energy balance equations in Chapter 1. This simultaneous increase in body fat and decrease in muscle mass leads to a greater body mass index (BMI) and is associated with an increased risk for heart and blood vessel diseases, obesity, diabetes, and other diseases (see Chapter 1).

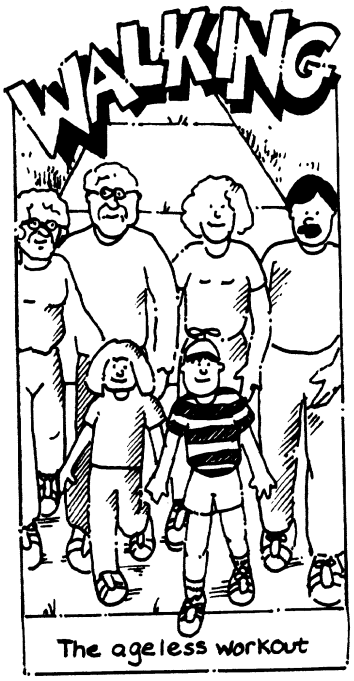
Any alterations in energy expenditure, either through changes in BMR or changes in physical activity level, need to be countered by changes in kcal intake to keep your net energy balance at zero and to maintain your current body weight. Therefore, a combination of sound nutritional practices and regular physical activity will enable you to maintain a healthy body weight and body composition and remain physically fit as you age.

Nutritional Needs



The Dietary Guidelines for Americans and the Food Guide Pyramid (outlined in Chapter 3) were designed to provide basic nutritional information and serve as educational tools for Americans over 2 years of age. Therefore, these guidelines should be followed to ensure good nutrition throughout your life. An important point to note is that although the age-related decline in BMR results in the need for fewer daily kcals, your requirements for nutrients such as vitamins, minerals, and proteins do not decrease with age (see Chapter 2). Therefore, proper food selection is essential to meet this challenge. Some ideas to help you meet your nutrient requirements without eating extra kcals include following the 5-A-Day campaign (eat at least five fruits and vegetables a day) and eating nutrient dense foods (see Chapter 3 and Appendix A).

Countering Age-Associated Changes in Fitness



Ever heard the saying "use it or lose it?" This is true for physical fitness. Whether it is muscle strength or aerobic endurance, if you do not remain physically active as you age you cannot maintain the muscle mass or heart adaptations you need for peak performance (review the effects of detraining listed in Chapter 4). Though aging can lead to decreases in fitness levels, the amount of decline can be offset by a regular exercise routine. Therefore, age itself does not predispose you to have large decrements in physical performance.

Some gradual changes you can expect in your physical performance as you age are listed below.

Table 16-1. Age-Related Changes in Fitness

Fitness Component	Typical Age-Related Change	Countermeasure
Aerobic Capacity	5% to 15% decline each decade after the age of 30.	Do aerobic exercise regularly; try to maintain your exercise intensity (see Chapters 4,5,6).
Muscle Strength	Loss of muscle mass and strength.	Do strength exercises regularly; training effect is based on your exercise intensity (see Chapters 4,7,8,10, Appendix B)
Flexibility	Loss of range of motion at a joint or joints.	Do stretching exercises regularly to maintain joint range of motion and prevent injury. Warm-up before stretching (see Chapters 4,9).
Anaerobic Capacity	Greater decline than aerobic capacity.	Do speed work in addition to aerobic exercise only if you want to maintain performance-related fitness or participate in competitive sports (see Chapters 4,5).

Other fitness issues to consider as you age include the following:

- **Warm-Up and Cool-Down** - Longer warm-up and cool-down times are needed to prepare your body for the upcoming exercise and reduce your risk of injury, particularly if you are participating in strenuous exercise (see Chapter 4).
- **Recovery from Workouts** - You will need to allow for longer recovery times from strenuous workouts and competition. You may actually notice this before you notice a decline in your performance. Allow for adequate recovery by following a hard workout with a couple rest days or light workout days. In addition, allow your body adequate time to adapt to increases in your workout. Pay attention to the warning signs of overtraining (see Chapter 13).
- **Recovery from Injuries** - As with recovery from a strenuous workout, you will probably need more time to recover from training injuries. Be patient and allow yourself to fully recover. This will help you avoid future injuries (see Chapter 13).
- **Cross-Training** - No specific exercise is better than another to offset all the health and fitness changes mentioned. However, many of these concerns can be addressed by cross-training, or altering the types of exercises you perform, throughout the week (see Chapter 5). By cross-training, you can improve and maintain your aerobic fitness while recovering from intense workouts or while taking a break from weight-bearing exercises. This will help prevent overtraining and overuse injuries (see Chapter 13) while you remain physically active. So, consider making cross-training a regular practice in your exercise routine, if it is not already.

As you grow older your responsibilities, interests, leisure time activities, as well as your level of motivation may affect how physically active you are. However, it is important to remember that a sedentary or inactive lifestyle, combined with poor eating habits, can increase the risk for developing obesity, heart disease, strokes, diabetes, some types of cancers, high blood pressure and osteoporosis. Adopting sound eating and exercise habits (the earlier the better) can help reduce the risk for developing the above mentioned diseases. Chapter 17 provides information on how to develop and maintain healthy habits.